

REMARKS

(1) Claims 20, 22-25, 33 and 34 are pending in this application, of which claim 20 has been amended. Claim 34 has been added. Claim 26 has been cancelled in this Response.

(2) Claim 20 was rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Item 2 of the outstanding Office Action.

Claim 20 has been amended to recite “electrodeposition amount of nickel.” The amendment is supported by the specification at page 17, line 9-10, stating that the unit, “mg/dm²” relates to “the average electrodeposition of nickel.”

(3) Claims 20, 22-26 and 33 were rejected under 35 U.S.C. §103(a) as being unpatentable over Atobe (JP 59-50190).

In response to the previous Applicant’s argument that Atobe only discloses “high-class accessory” and does not teach a circuit pattern, the Examiner states that whether or not it is a circuit material is irrelevant and Atobe only shows an intended use and has not limited to what the product was used for. The Examiner also states that a “decorative components” would be mostly likely to be etched or altered on its surface to form some surface topography. Page 7 of the outstanding Office Action.

In response, claim 20 has been amended to incorporate the limitation of claim 26.

First, the Examiner states that “there is no showing of any linear relationship between the resistance layer material *density* and its thickness (or length)” (Page 6 of the outstanding Office Action). The Examiner appears to have considered that the unit, “mg/dm²,” relates to the density, but it is incorrect. The unit, “mg/dm²,” means the deposition amount per unit area. There is a relationship between the thickness of the resistance layer and the deposition amount per unit area. The specification at page 17, lines 15-16 describes that “with nickel, 89 mg/dm² corresponds to about 1μm.” In other words, the specification describes that there is a linear relationship between the thickness and the deposition amount of nickel per unit area.

Atobe discloses that the thickness of the plate is 1.0μm and the P content is 16.5%. As explained above, there is a linear relationship between the thickness and the deposition amount of nickel per unit area (89 mg/dm² per 1μm). Therefore, in Atobe’s nickel layer, the deposition amount of nickel per unit area is 74 mg/dm²: $89 \text{ mg/dm}^2 \times 1\mu\text{m} \times (1-0.165)$.

The claimed average electrodeposition amount of nickel is 2.3 to 18.0 mg/dm² while Atobe discloses 74 mg/dm². The upper limit of the claimed range is less than one fourth of the Atobe’s disclosure. Atobe does not teach or suggest making thinner the disclosed deposition

amount of nickel per unit area. There is no evidence supporting that the Atobe's thick plating is reasonably modified into the claimed method.

Second, Atobe teaches away from adhering to an insulating material on the plating of Atobe. Although the Examiner states that Atobe only shows an intended use as a "high-class accessory" and has not limited to what the product was used for, nothing in Atobe teaches or suggests that the disclosed plating can be used for other use including electronic components. The use of "high-class accessory" in Atobe is not merely an intended use, but suggests the property of the disclosed material. One skilled in the art recognises that since the Atobe plate is used for a "high-class accessory," such a high-class accessory is used without an insulating material adhering thereon.

Third, although the Examiner states that a "decorative components" would mostly likely to be etched or altered on its surface to form some surface topography," page 7 of the outstanding Office Action, there is no showing that the etched or altered "decorative component" serves as a circuit pattern as recited in amended claim 20. One skilled in the art generally does not consider that decorative components, when etched, are etched to prepare a circuit pattern. In this regard, Atobe is not in the same field of invention as the present application. It is unpredictable for one skilled in the art to modify Atobe's decorative component to be subject to an etching process for the purpose of using it as a circuit board material having a circuit pattern, as required in amended claim 20.

(ii) Claims 20, 22-26 and 33 were rejected under 35 U.S.C. §103(a) as being unpatentable over Rice et al. (U.S. Patent No. 4,888,574) in view of Kazanovtsev et al. (WPI Derwent, vol 29).

Kazanovtsev et al. disclose the plating thickness being 8-10 μ m and the alloy P content being 12-17%. Thus, in the same manner as Atobe, the minimum deposition amount of nickel per unit area disclosed by Kazanovtsev is calculated as follows: $89 \text{ mg/dm}^2 \times 8\mu\text{m} \times (1-0.17) = 590.9 \text{ mg/dm}^2$. The deposition amount of nickel per unit area disclosed by Kazanovtsev is much more than the claimed range. Amended claim 20 is not obvious to modify Kazanovtsev into the claimed range.

In addition, in the previous Response, the Applicants argued that Rice et al. teach away from using sulfate salts (col. 1, lines 53-54), but the Examiner did not respond to this argument. As admitted by the Examiner at page 3, last line 3 of the Office Action dated June 9, 2009, Rice et al. teach away from the usage of sulphate salts. The Examiner merely deletes its admission from the Office Action dated September 29, 2009. However, as disclosed in the section "SUMMARY OF THE INVENTION," Rice et al. teaches that sulphate and chloride salts are not used in the plating bath (col. 1, lines 53-54). One skilled in the art understands that the Rice's invention teaches away from usage of sulphate salts.

Application No. 10/719,020
Art Unit: 1794

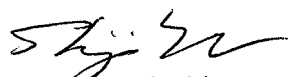
Amendment under 37 CFR §1.111
Attorney Docket No. 032130

In this respect, claim 34 has been added to recite sulfuric acid and its salts. The amendment is supported by e.g., Example 3 in the specification. Claim 34 is taught away from the teaching of Rice et al.

(5) In view of above, Applicants submit that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date. If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned representative at the telephone number indicated below to arrange for an interview to expedite the disposition of this case. If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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Attachment: Petition for Extension of Time